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ABSTRACT

The effect of stereotypes can be diluted by the presentation of additional facts about the target person. This dilution can be accomplished by the presentation of facts about the target person and by presenting no facts but simply inducing the subject to imagine or make guesses about the target person. A feature matching model is used to interpret the results. This model explains that both the irrelevant facts and imagination made the target appear less similar to a stereotyped person, or prototype. Thinking that the target did not fit some stereotype, subjects were unwilling to make extreme predictions. (Author/BN)

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The Dilution of Stereotypes: When "Non-information" is Informative [1]

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Running Head: The dilution of stereotypes

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The dilution of stereotypes:
When "non-information" is informative

The research I am reporting deals with the nature and accuracy of intuitive predictions we make about other people. These predictions are important because they influence our own behavior as well as the behavior of those around us. But how do we predict what others will do and what they are like--what strategies do we use and what are the strengths and weaknesses of these strategies? To answer these questions, most psychologists have relied on a single approach characterized by the following paradigm. Subjects are given information about a target person that subjects believe to be diagnostic of some outcome, e.g., a behavior or a trait. Subjects are then asked to predict whether the target person will perform the behavior or the degree to which the target possesses the trait. Thus for example, subjects are told a person is a white, southern policeman and asked to predict how bigoted the person is; or subjects are told a target person is German and asked to predict that person's efficiency.

Research of this sort indicates that we often make extreme, stereotype based predictions when we are given diagnostic information. For example, I tell you that a person is white, a policeman, and lives in the south; you use a cultural stereotype and predict that he is very bigoted. I tell you that a person is German; you use a national stereotype and predict that he is efficient and industrious. We make predictions such as these as if the relationship between the diagnostic information and the outcome is much stronger than even we believe it to be; that is, our predictions are nonregressive.

As important as this research is, it fails to capture a critical element of predictions we make in our day-to-day lives. When we make predictions about another individual we have available many facts about that person which are totally unrelated to the behavior or trait we are attempting to predict. Thus, we usually know more about a person than the fact that he is a white policeman from the south or that he is German. While some of these additional facts might be related to the behavior or trait we are predicting, most are totally unrelated to the outcome. Since previous research has dealt with only diagnostic information, it tells us nothing about how people combine diagnostic and nondiagnostic information in informationally rich prediction tasks. It might be anticipated that nondiagnostic information might increase the extremity of predictions. That is, people might render any number of facts to be consistent with their stereotypes with the result that they view the new facts as "confirming" initial stereotype based predictions. Surprizingly, our research (and research by Nisbett & Zukier, 1977) shows that this is not the case.

The starting point of our research was Amos Tversky's (1977) recent analysis of the nature of similarity judgments. Tversky states that when people predict whether a target possesses some trait or will perform some behavior, they are essentially assessing the degree to which the target information is representative of, or similar to, the outcome. To assess this similarity, people perform a feature matching analysis; that is, they compare the features of the target information with the features of the outcome. The target is judged to be similar or representative of the outcome to the extent that there are many features common to both the target and the outcome and there are few features that are unique and noncommon. To put this another way, similarity is a positive function of common features and a negative

function of noncommon or unique features. According to this view, diagnostic information is common to both target and outcome and increases their similarity. (E.g., the target is shy, short of stature, and enjoys poetry; most Chinese scholars are shy, short of stature, and enjoy poetry. The target is humorless and has a high math ability; most engineers are humorless and have high math ability.) On the other hand, nondiagnostic information is not common to target and outcome; it characterizes the target but does not characterize the outcome. If noncommon features reduce similarity, then the presence of nondiagnostic information should reduce the extremity of predictions based on diagnostic information. Such an effect would be non-normative because nondiagnostic information is by definition information that is irrelevant to predictions and should not effect predictions at all. However, such a "dilution effect," if obtained, would produce predictions that would be less extreme and would appear to be less stereotyped.

METHOD AND RESULTS

To assess the effects nondiagnostic information have on people's predictions, we conducted an experiment in which subjects read descriptions of three different psychological studies and then predicted the performance of undergraduate males in each of the studies. One study subjects made predictions for was a survey of movie attendance. In describing the undergraduates in this study, we took advantage of college stereotypes concerning the characteristics and behavior of students majoring in particular fields. We anticipated that subjects would predict that undergraduates majoring in the humanities would see more movies than undergraduates majoring in the sciences--the stereotypes suggested that humanity and science majors would behave differently in this study. When we gave subjects only this "diagnostic information," academic major, they did in fact make extreme differential predictions.

Subjects predicted that humanity majors saw over two and one-half times as many movies as science majors saw.

However, if subjects were given a substantial amount of irrelevant, nondiagnostic information such as target's hometown, religious background, etc., they made much less extreme predictions. While subjects given only diagnostic information predicted humanity majors saw 11 more movies than science majors, subjects given both diagnostic and nondiagnostic information predicted that humanity majors saw only 4 more movies than science majors. This pattern was also apparent in subjects' predictions for the other two studies--a study of creativity and a study of general knowledge. When subjects were given only the academic major of undergraduates in the creativity and general knowledge studies, they made extreme differential predictions based on stereotypes. However, when subjects were also given nondiagnostic information, they make less extreme predictions; the stereotypes were diluted. To test the significance of this "dilution effect," we pooled subjects' estimates for the movie, creativity, and knowledge studies. Doing this, we found that the overall reduction in the extremity of predictions was highly significant ($t = 2.633$, $df = 144$, $p < .005$).

To summarize these results, we found that when subjects were given only stereotypic, diagnostic information about male undergraduates in psychological studies, they make extreme differential predictions. However, when they were also given nondiagnostic information these stereotype based predictions were "diluted" and they became significantly less extreme. Our interpretation of this finding is that the addition of nondiagnostic information made noncommon features about the target salient. Since similarity is inversely related to the number of noncommon features, the similarity between target and outcome was reduced and it was this reduction in similarity that produced

the "dilution effect."

To further demonstrate this phenomenon and to increase its generality, we decided to manipulate the salience of noncommon features of the target with a very different experimental procedure.

One procedure which occurred to us was to merely instruct subjects to explicitly imagine or guess what the targets were like on dimensions that we anticipated would be irrelevant to the predicted outcome. The intriguing aspect of this manipulation is that subjects were given no additional information; subjects merely guessed what the additional information might be. Thus, subjects who read the description of the movie attendance survey were told that one undergraduate in the study was a science major. Before they predicted how many movies this person saw, we instructed the subjects to explicitly guess the target's hometown, religious affiliation, mother's occupation, etc. That is, we asked our subjects to guess what the target was like on dimensions unrelated to movie attendance. After they made these estimates, subjects predicted how many movies the science major saw. Subjects then made similar predictions for a second target, a humanities major.

Surprizingly, the basic dilution effect was replicated in this condition. Compared to control subjects, subjects making explicit estimates about what the targets were like made less extreme predictions of movie attendance. This dilution effect occurred in subjects' predictions for each of the three studies --movie attendance, creativity, and general knowledge. When we pooled subjects' estimates for these three studies, the overall dilution effect was statistically significant ($t = 1.520$. $df = 144$, $p < .07$).

DISCUSSION

The present results indicate that nondiagnostic information--whether it is provided by the experimenter or whether it is provided by the subjects themselves--serves to dilute the extremity of stereotype based predictions. The most parsimonious interpretation of this phenomenon relies on Tversky's theorizing about intuitive predictions. As you recall, Tversky states that people make predictions by judging the similarity of the target information to the predicted outcome. This similarity is best described as a ratio of common to noncommon features. Therefore, it follows that any manipulation that makes features of the target salient which are irrelevant to the outcome will reduce this similarity and hence the extremity of predictions.

Regardless of the nature of the dilution effect however, it is clearly not justified on normative grounds. Since nondiagnostic information is by definition information which is irrelevant to predictions, it should have no effect whatsoever. These results show that this is not the case.

These results provide us grounds for cautious optimism about the accuracy of predictions we make about the behavior and traits of another person. Previous research showed that our predictions based only on diagnostic information are influenced by our stereotypes and are apt to be extreme and inaccurate. This dangerous tendency might be counteracted by another erroneous but benign tendency which dilutes the effect of our stereotypes in the presence of seemingly irrelevant facts or non-information about that person.

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ABSTRACT

An experiment is reported dealing with the use of stereotypes or simple representativeness criteria in social inference and judgment. The experiment demonstrated that the effect of stereotypes can, to a considerable degree, be "diluted" by the presentation of additional facts about the target person. Most surprising is the finding that such dilution can be accomplished (a) by the presentation of facts about the target person that are manifestly irrelevant to both the stereotype and the predicted behavior and (b) by presenting no additional facts but simply inducing the subject to imagine or make guesses about the target person. Such a phenomenon obviously poses problems for any purely rational and logical model of human judgment and prediction. Instead, a feature-matching model (Tversky, 1977) is used to interpret the results. This model explains that both the irrelevant facts and the imagination instructions made cognitively salient or "available" certain features of the target person that, in turn, made the target appear less similar to or "representative" of a "stereotyped" person or prototype. Thinking that the target did not fit some stereotype, subjects were unwilling to make extreme predictions about him or her.